

ORDER OF THE STATE OF WISCONSIN  
NATURAL RESOURCES BOARD  
REPEALING, RENUMBERING AND AMENDING, AMENDING AND CREATING RULES

The Wisconsin Natural Resources Board adopts an order to **repeal** NR 485.04(9)(b); to **renumber and amend** NR 485.04 (9)(title) and (a); to **amend** NR 428.01(1) and (2), 428.02 and 484.04(21) and (27); and to **create** NR 400.02(45m), 410.06, 423.02(1), (1g), (1r), (5g), (5r), (7m) (8), (8c), (8g), (8L), (8p), (8t), (8x), (9c), (9g), (9n), (9r), (9w), (10g), (10r), (11g) and (11r), 423.035, 428.02(1) to (8), 428 subchs. I to III and 439.096, relating to reducing ozone concentrations in the ambient air in southeastern Wisconsin by controlling nitrogen oxides (NO<sub>x</sub>) and volatile organic compound (VOC) emissions.

AM-27-00

Analysis Prepared by the Department of Natural Resources

Authorizing statutes: ss. 227.11(2)(a) and 285.11(1) and (6), Stats.

Statutes interpreted: s. 285.11(6), Stats. The State Implementation Plan developed under that provision is revised.

For the purpose of attaining the 1-hour ambient air quality standard for ozone in southeastern Wisconsin, this rule package includes provisions to achieve emission reductions of volatile organic compounds (VOC) and nitrogen oxides (NO<sub>x</sub>) from various categories of sources. The rules include several provisions which are specifically required under the Clean Air Act.

The order establishes a federally-mandated excess emissions fee, which would be imposed in 2008 on major sources of VOC in the ozone nonattainment area **if** the area fails to attain the 1-hour ozone standard in 2007. The fee of \$5,000 per ton of VOC (as adjusted by changes in the Consumer Price Index since 1990) would be applied to VOC emissions which exceed 80% of a source's 2007 baseline emissions.

The order establishes reasonably available control technology (RACT) emission limits on VOC emissions from industrial solvent cleaning operations at major sources. These VOC emission limits are applicable to sources whose emissions from industrial cleaning operations are major after excluding VOC emissions from other operations at the facility that are subject to existing RACT VOC emission limits.

The current inspection/maintenance (I/M) program for motor vehicles which is operating in southeastern Wisconsin tests for VOC and NO<sub>x</sub> emissions, but the NO<sub>x</sub> emissions are not enforceable limits. This order proposes to have the NO<sub>x</sub> cutpoints for the I/M program become enforceable in May, 2001.

The order proposes a series of emission limits and requirements for various categories of stationary sources of NO<sub>x</sub> emissions. These include:

Combustion optimization: Specific categories of NO<sub>x</sub> emissions units are required to undertake a one-time combustion optimization to minimize NO<sub>x</sub> emissions from the units and to operate their emissions units consistent with the results of the combustion optimization.

Performance standards: Specific numeric NO<sub>x</sub> emission standards are established for various categories of new and modified and existing sources. The standards apply to utility boilers, other boilers, combustion turbines, specific industrial process lines, and reciprocating engines.

Monitoring, recordkeeping and reporting requirements are also established for the categories of stationary sources subject to these emission limit requirements and performance standards.

SECTION 1. NR 400.02(45m) is created to read:

NR 400.02(45m) "Contact adhesive" means an adhesive that is applied to 2 substrates, dried and mated under only enough pressure to result in good contact. The bond is immediate and sufficiently strong to hold pieces together without further clamping, pressure or airing.

SECTION 2. NR 410.06 is created to read:

**NR 410.06 Severe ozone nonattainment area major source fee.** (1) FEE REQUIRED. Except as provided in sub. (3), any person who owns or operates a stationary source which emits or has the potential to emit 25 tons per year of volatile organic compounds (VOCs) and which is located in Kenosha, Milwaukee, Ozaukee, Racine, Washington or Waukesha county shall pay a fee, computed in accordance with sub. (2), beginning in 2008 and in each calendar year thereafter until the county in which the stationary source is located is redesignated as an attainment area for the 1-hour ozone standard. The fee required under this section shall be paid at the time that the annual emission fee under s. NR 410.04 is paid.

(2) COMPUTATION OF FEE. (a) *Fee amount.* The fee required under sub. (1) shall equal \$5,000, adjusted in accordance with par. (c), per ton of VOCs emitted by the source during the previous calendar year in excess of 80% of the baseline amount, computed under par. (b).

(b) *Baseline amount.* For purposes of this section, the baseline amount shall be computed, in accordance with any guidance which the administrator may provide, as the lower of the amount of actual VOC emissions or the VOC emissions allowed under either a permit or emission limitations applicable to the source, during calendar year 2007.

(c) *Annual adjustment.* The fee amount under par. (a) shall be adjusted annually, beginning in 1990, by the percentage, if any, by which the consumer price index, as defined in section 502(b)(3)(B)(v) of the act (42 USC

7661a (b)(3)(B)(v)), has been adjusted.

(3) EXCEPTION. No person who owns or operates a stationary source is required to pay any fee under sub. (1) with respect to emissions during any year that is treated as an extension year under section 181(a)(5) of the act (42 USC 7511(a)(5)).

SECTION 3. NR 423.02(1), (1g), (1r), (5g), (5r), (7m) (8), (8c), (8g), (8L), (8p), (8t), (8x), (9c), (9g), (9n), (9r), (9w), (10g), (10r), (11g) and (11r) are created to read:

NR 423.02(1) "Application equipment" means a device used to apply adhesive, coating, ink or polyester resin materials.

(1g) "Aerosol product" means solvent or solvent solution expelled by a propellant from a hand-held non-refillable pressurized container.

(1r) "Blanket or roller wash" has the meaning given it in s. NR 422.02(12).

(5g) "Electrical apparatus component" means an internal component such as wires, windings, stators, rotors, magnets, contacts, relays, energizers and connections in an apparatus that generates or transmits electrical energy including, but not limited to: alternators, generators, transformers, electric motors, cables and circuit breakers, except for the actual cabinet in which the components are housed. Electrical components of all rotogravure, letterpress, flexographic and lithographic application equipment and hot-line tools are also included in this category.

(5r) "Flexographic printing" has the meaning given it in s. NR 422.02(35).

(7m) "Hot-line tool" means a specialized tool used primarily on the transmission systems, sub-transmission systems and distribution systems for replacing and repairing circuit components or for other types of work with electrically energized circuits.

(8) "Industrial cleaning operations" means the process of cleaning

products, product components, tools, equipment or general work areas during production, repair, maintenance or servicing with solvents or solvent solutions.

(8c) "Letterpress printing" means the method in which the image area is raised relative to the non-image area and the ink is transferred directly from the ink roller to the plate cylinder.

(8g) "Lithographic printing" has the meaning given it in s. NR 422.02(48).

(8L) "Maintenance cleaning" means an activity carried out to keep general work areas, tools, machinery or equipment, excluding application equipment, in clean and good operational condition.

(8p) "Medical device" means an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent or other similar article, including any component or accessory that meets any one of the following conditions:

(a) It is intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment or prevention of disease.

(b) It is intended to affect the structure or function of the body.

(c) It is defined as a "device" under 21 USC 321.

Note: Common examples of such medical devices include but are not limited to x-ray machines, medical lasers, diagnostic ultrasound products, thermometers, bedpans, artificial hearts, pacemakers, pregnancy test kits, scalpels, tongue depressors and bandages.

(8t) "Non-atomized flow" means the use of solvent or solvent solution in the form of a liquid stream without atomization to remove uncured adhesives, uncured inks, uncured coatings or contaminants from an article.

(8x) "On-press component" means a part, component or accessory of a

press that is cleaned while still being physically attached to the press. Rollers, blankets, metering rollers, fountains, impression cylinders and plates are considered on-press components even when detached from the press.

(9c) "Remote reservoir cleaner" means a cleaning device in which solvents or solvent solutions are pumped from a container to a sink-like work area and the solvents or solvent solutions from the sink-like area drain into an enclosed container while parts are being cleaned.

(9g) "Removable press component" means a part, component or accessory of a press, excluding rollers, blankets, metering rollers, fountains, impression cylinders and plates, that is physically attached to the press but is disassembled and removed from the press prior to being cleaned.

(9n) "Repair cleaning" means a cleaning operation or activity carried out during a repair process.

(9r) "Repair process" means the process of returning a damaged object or an object not operating properly to good operating condition.

(9w) "Rotogravure printing" has the meaning given it in s. NR 422.02(80).

(10g) "Screen printing" has the meaning given it in s. NR 422.02(82).

(10r) "Surface preparation" means the removal of contaminants such as dust, soil, oil, etc., prior to coating, adhesive or ink applications.

(11g) "VOC composite partial vapor pressure" means the sum of the partial pressures of the compounds defined as VOCs and shall be calculated by the one of the following equations:

$$P_{voc} = \left[ \frac{\sum_{i=1}^Q \left( \frac{W_i}{MW_i} \right)}{\frac{W_w}{MW_w} + \sum_{j=1}^K \left( \frac{W_{NVOCj}}{MW_{NVOCj}} \right) + \sum_{i=1}^Q \left( \frac{W_i}{MW_i} \right)} \right] P_{total}$$

or, if the total vapor pressure of the mixture is unknown

$$P_{voc} = \left[ \frac{\sum_{i=1}^Q \left( \frac{W_i VP_i}{MW_i} \right)}{\frac{W_w}{MW_w} + \sum_{j=1}^K \left( \frac{W_{NVOCj}}{MW_{NVOCj}} \right) + \sum_{i=1}^Q \left( \frac{W_i}{MW_i} \right)} \right]$$

where:

$P_{voc}$  is the VOC composite partial vapor pressure at 20°C (mm Hg)

$W_i$  is the weight of the  $i$  th VOC compound (kilograms)

$MW_i$  is the molecular weight of the  $i$  th VOC compound (kilograms per kilogram mole)

$W_w$  is the weight of the water (kilograms)

$MW_w$  is the molecular weight of the water (kilograms per kilogram mole)

$W_{NVOCj}$  is the weight of the  $j$  th organic compound included in the VOC exclusion list in s. NR 400.02(162) (kilograms)

$MW_{NVOCj}$  is the molecular weight of the  $j$  th organic compound included in the VOC exclusion list in s. NR 400.02(162) (kilograms per kilogram mole)

$P_{total}$  is the total vapor pressure of the mixture at 20°C (mm Hg)

$VP_i$  is the vapor pressure of  $i$  th VOC compound at 20°C (mm Hg)

(11r) "VOC content" means the weight of VOC per volume of solvent or

solvent solution and shall be calculated by the following equation:

$$VOC\ content = \left[ \frac{W_s - W_w - W_{NVOC}}{V_s} \right]$$

where:

*VOC content* is in kilograms of VOC per liter of solvent or solvent solution (pounds per gallon)

*W<sub>s</sub>* is the weight of solvent or solvent solution in kilograms (pounds)

*W<sub>w</sub>* is the weight of water in kilograms (pounds)

*W<sub>NVOC</sub>* is the weight of organic compounds included in the VOC exclusion list in s. NR 400.02(162) in kilograms (pounds)

*V<sub>s</sub>* is the volume of solvent or solvent solution in liters (gallons)

SECTION 4. NR 423.035 is created to read:

**NR 423.035 Industrial cleaning operations.** (1) APPLICABILITY. (a) Except as provided in sub. (9)(a), this section applies to industrial cleaning operations at facilities which are located in Kenosha, Milwaukee, Ozaukee, Racine, Washington or Waukesha county and have maximum theoretical emissions of VOCs from the facility, excluding any maximum theoretical emissions of VOCs specifically subject to s. NR 419.05, 419.06 or 419.08, ch. NR 420, 421 or 422, or s. NR 423.03, 423.04, 423.05, 424.04 or 424.05, of 25 tons per year or more.

Note: To determine the maximum theoretical emissions of VOCs from a facility, excluding any maximum theoretical emissions of VOCs specifically subject to the cited provisions, use the following procedure. 1. Calculate the maximum theoretical emissions of VOCs from the facility. 2. Calculate the maximum theoretical emissions

of VOCs from the facility subject to s. NR 419.05, 419.06 or 419.08, ch. NR 420, 421 or 422, or s. NR 423.03, 423.04, 423.05, 424.04 or 424.05. 3. Subtract the emissions calculated in step 2 from the emissions calculated in step 1. 4. If the quantity calculated in step 3 is less than 25 tons per year, then the only requirements of this section which apply to the facility are the recordkeeping requirements of sub. (9)(a).

(b) Except as provided in sub. (9)(a), this section applies to industrial cleaning operations at facilities which are located in Kewaunee, Manitowoc or Sheboygan county and have maximum theoretical emissions of VOCs from the facility, excluding any maximum theoretical emissions of VOCs specifically subject to s. NR 419.05, 419.06 or 419.08, ch. NR 420, 421 or 422, or s. NR 423.03, 423.04, 423.05, 424.04 or 424.05, of 100 tons per year or more.

Note: To determine the maximum theoretical emissions of VOCs from a facility, excluding any maximum theoretical emissions of VOCs specifically subject to the cited provisions, use the following procedure. 1. Calculate the maximum theoretical emissions of VOCs from the facility. 2. Calculate the maximum theoretical emissions of VOCs from the facility subject to s. NR 419.05, 419.06 or 419.08, ch. NR 420, 421 or 422, or s. NR 423.03, 423.04, 423.05, 424.04 or 424.05. 3. Subtract the emissions calculated in step 2 from the emissions calculated in step 1. 4. If the quantity calculated in step 3 is less than 100 tons per year, then the only requirements of this section which apply to the facility are the recordkeeping requirements of sub. (9)(a).

(2) EXEMPTIONS. If an exemption level in this subsection is exceeded, the exemption will no longer apply to the facility. Exemptions include the following:

(a) This section does not apply to:

1. Operations regulated under s. NR 421.06(2)(c), 422.095(6), 422.142(2)(c), 422.145(2)(d), 422.15(8), 422.155(3) or 423.03.

2. Stripping of cured coatings, cured inks or cured adhesives.



3. Cleaning operations in graphic arts pre-press areas including the cleaning of film processors, color scanners or plate processors, or film cleaning and plate cleaning.

(b) Subsection (3) does not apply to any of the following:

1. Cleaning conducted in conjunction with performance laboratory tests on coatings, adhesives or inks; research and development programs; and laboratory tests in quality assurance laboratories.

2. Cleaning of electrostatic printing and coating application equipment.

3. Medical device and pharmaceutical manufacturing facilities using less than a total of 1.5 gallons per day of VOC-containing solvents and solvent solutions for industrial cleaning operations.

4. Facilities where the aggregate use of solvent and solvent solutions which do not comply with the applicable VOC content limits in sub. (3) and of any coatings and inks exempt under s. NR 422.03(7) does not exceed 55 gallons during any 12 consecutive months at the facility.

(c) Subsections (3) and (7) do not apply to cleaning with aerosol product if 160 fluid ounces or less of VOC-containing aerosol product are used per day for industrial cleaning operations, per facility.

(d) Subsection (7) does not apply to cleaning with solvents or solvent solutions in spray bottles or containers described in sub. (4)(b).

(e) Subsection (7) does not apply to the cleaning of the nozzle tips of automated spray equipment systems except for robotic systems that can be programmed to spray into a closed container.

(f) Subsection (7) does not apply to automatically applied blanket or roller wash.

(g) Subsections (4) to (8) do not apply to cleaning using solvents or solvent solutions containing no more than 0.05 kilograms of VOC per liter.

(3) SOLVENT AND SOLVENT SOLUTION REQUIREMENTS. Except as provided under sub. (6), no owner or operator of a facility may cause, allow or permit the

use of a solvent or solvent solution for industrial cleaning operations on or after January 1, 2002 unless the VOC content of the solvent or solvent solution is less than or equal to the applicable VOC content listed in Table 1.

**Table 1**  
**VOC Content Limits for Solvents and Solvent Solutions Used in Industrial Cleaning Operations**

Cleaning Activity	VOC Content of solvent or solvent solution in kilograms per liter (pounds per gallon)
(a) Product cleaning during manufacturing process or surface preparation for coating, adhesive or ink application	
1. General	0.05 (0.42)
2. Electrical apparatus components and electronic components	0.50 (4.2)
3. Laminated wood products - removal of contact adhesives	
a. General	0.46 (3.8)
b. Polyvinylchloride surfaces	0.70 (5.8)
4. Medical devices and pharmaceuticals	0.80 (6.7)
5. Screen printing - removal of adhesives from plastic substrates	0.77 (6.4)
(b) Repair and maintenance cleaning	
1. General	0.05 (0.42)
2. Electrical apparatus components and electronic components	0.90 (7.5)
3. Medical devices and pharmaceuticals	
a. Tools, equipment and machinery	0.80 (6.7)
b. General work surfaces	0.60 (5.0)

4. Screen printing - removal of oils and adhesives from cutting dies	0.55 (4.6)
(c) Cleaning of coatings application equipment or adhesives application equipment	
1. General	0.55 (4.6)
2. Architectural coatings	0.95 (7.9)
3. Ultraviolet coatings	0.80 (6.7)
(d) Cleaning of ink application equipment	
1. General	0.05 (0.42)
2. Flexographic printing	
a. General	0.05 (0.42)
b. Plastics, coated papers and metal foils	0.89 (7.4)
3. Rotogravure printing	
a. Publication	0.75 (6.3)
b. Packaging	0.05 (0.42)
4. Lithographic or letterpress printing	
a. On-press components	*
b. Removable press components	0.05 (0.42)
5. Screen printing	0.77 (6.4)
6. Ultraviolet ink application equipment (except screen printing)	0.80 (6.7)
(e) Cleaning of polyester resin application equipment	0.05 (0.42)

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\* A maximum VOC content of 30% by weight.

(4) CLEANING DEVICES AND METHODS REQUIREMENTS. Except as provided under sub. (6), on or after January 1, 2002, the owner or operator of a facility shall employ one or more of the following cleaning devices or methods when using solvents or solvent solutions:

(a) Physically rubbing a surface with a porous applicator such as a rag, paper, sponge or a cotton swab moistened with solvent or solvent solution.

(b) Closed containers or hand held spray bottles from which solvents or solvent solutions are applied without a propellant-induced force.

(c) Cleaning equipment which has a solvent or solvent solution container that is closed during cleaning operations, except when depositing and removing objects to be cleaned, and is closed during non-operation with the exception of maintenance and repair to the cleaning equipment itself.

(d) A remote reservoir cleaner operated in compliance with all of the following requirements:

1. Solvent vapors are prevented from escaping from the solvent or solvent solution container by using devices such as a cover or a valve when the remote reservoir is not being used, cleaned or repaired.

2. Flow is directed in a manner that prevents solvent or solvent solution from splashing outside of the remote reservoir cleaner.

3. The cleaner is not used for cleaning porous or absorbent materials, such as cloth, leather, wood or rope.

4. Only solvent or solvent solution containers free of all liquid leaks are used. Auxiliary equipment, such as pumps, pipelines or flanges, may not have any liquid leaks, visible tears or cracks. Any liquid leak, visible tear or crack detected shall be repaired within one calendar day, or the leaking section of the remote reservoir cleaner shall be drained of all solvents or solvent solutions and shut down until it is replaced or repaired.

(e) A non-atomized flow method where the used solvents or solvent solutions are collected in a container or a collection system which is closed, except for the solvent or solvent solution collection openings that may be open when filling or emptying, or the opening caused by use of a pressure relief valve.

(f) A flushing method where the used solvents or solvent solutions are discharged into a container which is closed, except for the solvent or solvent solution collection openings that may be open when filling or emptying, or the opening caused by use of a pressure relief valve. The discharged solvents or solvent solutions shall be collected into containers without atomizing into the open air.

(5) STORAGE AND DISPOSAL. The owner or operator of a facility shall store all solvents or solvent solutions used in industrial cleaning operations in non-absorbent, non-leaking containers which shall be kept covered except when filling or emptying. Cloth and paper moistened with solvents or solvent solutions shall be stored in covered, non-absorbent, non-leaking containers.

(6) CONTROL EQUIPMENT. In lieu of complying with the requirements in sub. (3) or (4), the owner or operator of a facility may use a VOC emission control system to control VOC emissions from the industrial cleaning operations at the facility provided one of the following requirements is met:

(a) The emission control system has an overall emission reduction efficiency of 85% for VOC emissions as determined in accordance with s. NR 439.06(3)(am).

(b) The emission control system has a VOC capture efficiency of 90% and an output of VOC emissions of less than 50 ppm calculated as carbon, not including methane and ethane, with no dilution as determined in accordance with s. NR 439.06(3)(a).

(c) The emission control system meets the requirements of the applicable source specific rule in chs. NR 420 to 422.

(7) GENERAL PROHIBITIONS. The owner or operator of a facility may not atomize any solvent or solvent solution unless the resulting VOC emissions are controlled by an air pollution control system that meets one of the requirements of sub. (6).

(8) ALTERNATIVE COMPLIANCE OPTION. In lieu of complying with the requirements in sub. (3), the owner or operator of a facility may use solvents or solvent solutions for industrial cleaning operations which have a VOC composite partial vapor pressure of less than or equal to 10 mm of Hg at 20°C.

(9) RECORDKEEPING REQUIREMENTS. (a) To determine applicability under sub. (1), each owner or operator of an industrial cleaning operation at a facility located in Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha county shall maintain records of the maximum theoretical emissions of VOCs from the facility excluding any maximum theoretical emissions of VOCs specifically subject to s. NR 419.05, 419.06 or 419.08, ch. NR 420, 421 or 422, or s. NR 423.03, 423.04, 423.05, 424.04 or 424.05.

(b) Each owner or operator of a facility that is exempt under sub. (2) shall collect and record the information specified in this paragraph as appropriate:

1. Any owner or operator claiming to be exempt under sub. (2)(b)3. shall maintain records of the daily quantity in gallons of VOC-containing solvents and solvent solutions used for industrial cleaning operations.

2. Any owner or operator claiming to be exempt under sub. (2)(b)4. shall maintain records of the amount used in gallons of non-compliant solvents and solvent solutions and the amount used in gallons of any coatings and inks exempt under s. NR 422.03(7) during any 12 consecutive months at a facility.

3. Any owner or operator claiming to be exempt under sub. (2)(c) shall maintain records of the daily quantity in fluid ounces of VOC-containing aerosol product used for industrial cleaning operations.

4. Any owner or operator claiming to be exempt under sub. (2)(g) shall maintain a record of the VOC contents of the solvents or solvent solutions used in kilograms per liter or pounds per gallon.

(c) Each owner or operator of a facility that is subject to this section shall collect and record the information specified in this paragraph as appropriate:

1. Any owner or operator subject to sub. (3) shall maintain a record of the VOC contents of the solvents or solvent solutions used in industrial cleaning operations in kilograms per liter, pounds per gallon or weight percent.

2. Any owner or operator subject to sub. (6) shall keep a record of the results of any testing conducted as required under sub. (6).

3. Any owner or operator subject to sub. (8) shall keep a record of the VOC composite partial vapor pressures of solvents or solvent solutions used in industrial cleaning operations.

(d) Records required under this subsection shall be kept for five years unless another time period is approved by the department.

SECTION 5. NR 428.01(1) and (2) are amended to read:

NR 428.01(1) APPLICABILITY. This chapter applies to all air contaminant sources which emit nitrogen compounds and to their owners and operators. All references to the code of federal regulations in this chapter mean those parts or provisions as in effect on the effective date of this section...[revisor inserts date], except that in the case of CFR appendices incorporated by reference in ch. NR 484, if a more recent date is specified in the applicable section of ch. NR 484, that date shall apply.

(2) PURPOSE. This chapter is adopted under ss. 285.11, 285.13 and 285.17, Stats., to categorize nitrogen compound air contaminant sources and to establish emission limitations and other requirements for these sources in order to protect air quality.

SECTION 6. NR 428.02 is amended to read:

NR 428.02 The definitions contained in ch. NR 400 apply to the terms used in this chapter. In addition, the following definitions apply to the terms used in this chapter:

SECTION 7. NR 428.02(1) to (8) are created to read:

NR 428.02(1) "Capacity factor" means one of the following:

(a) The ratio of a unit's actual electric output (expressed in MWe-hr) to the unit's nameplate capacity times the unit's potential hours of operation. The potential hours of operation on an annual basis are 8,760 hours, and on an ozone season basis are 3,672 hours.

(b) The ratio of a unit's heat input (in million Btu or equivalent units of measure) to the unit's maximum design heat input (in million Btu per hour or equivalent units of measure) times the unit's potential hours of operation.

(2) "Combined cycle system" means a system comprised of one or more combustion turbines, heat recovery steam generators and steam turbines configured to improve overall efficiency of electricity generation or steam production.

(3) "Combustion controls" has the meaning given in s. NR 409.02(21m).

(4) "Combustion optimization" means those activities necessary to maximize combustion efficiency while minimizing NO<sub>x</sub> emissions, including but not limited to the following: burner adjustments, fuel conditioning, fuel flow improvements, furnace design modifications and the application of combustion controls.

(5) "Combustion turbine" means an enclosed fossil or other fuel-fired device that is comprised of a compressor, a combustor and a turbine, and in which the flue gas resulting from the combustion of fuel in the combustor passes through the turbine, rotating the turbine.

(6) "Commencement of operation" means the beginning of any mechanical, chemical or electronic process, including, with regard to a unit, startup of a unit's combustion chamber.



(7) "Kraft recovery boiler" means "recovery furnace", as defined in s. NR 440.45(2)(L).

(8) "Unit" means a solid fuel-fired or fossil fuel-fired combustion device.

SECTION 8. NR 428 subchs. I to III are created to read:

#### **CHAPTER NR 428**

##### **SUBCHAPTER I**

##### **NO<sub>x</sub> EMISSIONS PERFORMANCE PROGRAM GENERAL PROVISIONS**

**NR 428.04 Requirements and performance standards for new or modified sources.** (1) **APPLICABILITY.** The requirements of this section apply to emissions units described in this section that are located in Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha county and that are constructed or that undergo a major modification, as that term is described in ch. NR 405 or 408, after the effective date of this section...[revisor inserts date].

(2) **PERFORMANCE STANDARDS.** (a) *Boilers.* 1. 'Solid fuel-fired units.' No person may cause, allow or permit nitrogen oxides to be emitted from a solid fuel-fired boiler in amounts greater than those specified in this subdivision.

a. 0.15 pound per million Btu of heat input on a 30-day rolling average basis for boilers with a maximum design heat input of 250 million Btu per hour or greater.

b. 0.20 pound per million Btu of heat input on a 30-day rolling average basis for boilers with a maximum design heat input of less than 250 million Btu per hour.

2. 'Gaseous fuel-fired units.' No person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired boiler with a maximum

design heat input of 25 million Btu per hour or greater in an amount greater than 0.05 pound per million Btu of heat input on a 30-day rolling average basis.

3. 'Distillate fuel oil-fired boilers.' No person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired boiler with a maximum design heat input of 25 million Btu per hour or greater in an amount greater than 0.09 pound per million Btu of heat input on a 30-day rolling average basis.

4. 'Residual fuel oil-fired boilers.' No person may cause, allow or permit nitrogen oxides to be emitted from a residual fuel oil-fired boiler with a maximum design heat input of 25 million Btu per hour or greater in an amount greater than 0.15 pound per million Btu of heat input on a 30-day rolling average basis.

5. 'Kraft recovery boilers.' No person may cause, allow or permit nitrogen oxides to be emitted from a kraft recovery boiler with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 0.10 pound per million Btu of heat input on a 30-day rolling average basis.

(b) *Cement kilns, lime kilns and calciners.* No person may cause, allow or permit nitrogen oxides to be emitted from a cement kiln, lime kiln or calciner with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.10 pound per million Btu on a 30-day rolling average basis when burning gaseous fuel.

2. 0.12 pound per million Btu on a 30-day rolling average basis when burning distillate fuel oil.

3. 0.20 pound per million Btu on a 30-day rolling average basis when

burning residual fuel oil.

4. 0.60 pound per million Btu on a 30-day rolling average basis when burning solid fuel.

(c) *Reheat, annealing and galvanizing furnaces.* No person may cause, allow or permit nitrogen oxides to be emitted from a reheat furnace, annealing furnace or galvanizing furnace with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 0.10 pound per million Btu on a 30-day rolling average basis.

(d) *Glass furnaces.* No person may cause, allow or permit nitrogen oxides to be emitted from a glass furnace with a maximum design heat input of 50 million Btu per hour or greater in an amount greater than 4.0 pounds per ton of pulled glass on a 30-day rolling average basis.

(e) *Asphalt plants.* No person may cause, allow or permit nitrogen oxides to be emitted from an asphalt plant with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.15 pound per million Btu of heat input on a 30-day rolling average basis when burning gaseous fuel.

2. 0.20 pound per million Btu of heat input on a 30-day rolling average basis when burning distillate fuel oil.

3. 0.27 pound per million Btu of heat input on a 30-day rolling average basis when burning residual fuel oil or waste oil.

(f) *Process heating units.* No person may cause, allow or permit nitrogen oxides to be emitted from a process heater, dryer, oven or other external combustion unit with a maximum design heat input of 50 million Btu per hour or greater in amounts greater than those specified in this paragraph.

1. 0.10 pound per million Btu of heat input on a 30-day rolling average basis when burning gaseous fuel.

2. 0.12 pound per million Btu of heat input on a 30-day rolling average

basis when burning distillate fuel oil.

(g) *Combustion turbines.* 1. 'Gaseous fuel-fired units.' No person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired combustion turbine in amounts greater than those specified in this subdivision.

a. 12 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 85 MWe or greater.

b. 9 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 40 MWe or greater but less than 85 MWe.

c. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of less than 40 MWe.

d. 3 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of 25 MWe or greater.

e. 14 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of less than 25 MWe.

2. 'Distillate fuel oil-fired units.' No person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired combustion turbine in amounts greater than those specified in this subdivision.

a. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 85 MWe or greater.

b. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of 40 MWe or greater but less than 85 MWe.

c. 65 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a simple cycle combustion turbine with a maximum design power output of less than 40 MWe.

d. 8 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of 25 MWe or greater.

e. 25 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for a combined cycle combustion turbine with a maximum design power output of less than 25 MWe.

(h) *Reciprocating engines.* No person may cause, allow or permit nitrogen oxides to be emitted from a reciprocating engine in amounts greater than those specified in this paragraph.

1. 6.9 grams per brake horsepower for a compression ignition unit with a maximum design power output of 1000 hp or greater.

2. 4.0 grams per brake horsepower for a spark ignition unit with a maximum design power output of 1000 hp or greater.

(3) MONITORING REQUIREMENTS. (a) *General requirements.* 1. The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (2) shall comply with the monitoring requirements of subch. III.

2. The emissions measurements recorded and reported in accordance with subch. III shall be used to determine compliance by the unit with the applicable NO<sub>x</sub> emissions performance standard under sub. (2).

(b) *Specific requirements.* The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (2) shall determine the annual

average NO<sub>x</sub> emission rate, in pound per million Btu, using methods and procedures specified in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04, or other combustion monitoring methods approved by the department.

(4) RECORDKEEPING AND REPORTING REQUIREMENTS. (a) Except as provided in subd. 1, the owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of this section shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created.

1. All emissions monitoring information, in accordance with subch. III; except that, to the extent that subch. III provides for a 3-year period for record retention, the 3-year period shall apply.

2. Copies of all reports, compliance certifications and other submissions and all records made or required under the NO<sub>x</sub> emissions performance program.

(b) The owner or operator of the NO<sub>x</sub> emissions source shall submit the compliance reports and certifications required under the NO<sub>x</sub> emissions performance program in conjunction with those required under the construction permit requirements of ch. NR 406 and the operation permit requirements of s. NR 407.09.

**NR 428.05 Requirements and performance standards for existing sources.**

(1) APPLICABILITY. The requirements of this section apply to emissions units described in this section that are located in Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington or Waukesha county and that were constructed or last modified on or before the effective date of this section...[revisor inserts date].

(2) NO<sub>x</sub> EMISSIONS OPTIMIZATION. (a) The requirements of this subsection

do not apply to emissions units which are subject to the emission limits of sub. (3).

(b) Except as provided in par. (a) or (c), the following categories of NO<sub>x</sub> emissions units listed in this subsection shall complete a combustion optimization to minimize NO<sub>x</sub> emissions in accordance with s. NR 439.096 by December 31, 2002.

1. Solid fuel-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

2. Natural gas-fired boilers with a maximum design heat input of 50 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

3. Distillate or residual fuel oil-fired boilers with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

4. Cement kilns, lime kilns and calciners with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

5. Reheat furnaces, annealing furnaces and galvanizing furnaces with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

6. Glass manufacturing furnaces with a maximum design heat input of 75 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 20%.

(c) An emissions unit described in par. (b) which first operates with a

capacity factor exceeding 20% in an ozone season after the 2000 ozone season shall complete a combustion optimization by December 31 of the calendar year following that ozone season.

(d) The owner or operator of an NO<sub>x</sub> emissions unit subject to a combustion optimization requirement under par. (b) shall operate the emissions unit in a manner consistent with the results of the combustion optimization.

(e) The owner or operator of a source subject to the NO<sub>x</sub> emissions optimization requirements of this subsection shall perform monitoring sufficient to determine compliance with the requirements of this subsection. The monitoring required under this paragraph shall be either continuous monitoring of NO<sub>x</sub> emissions or periodic monitoring of parameters adequate to ascertain the quality of the combustion and shall conform to the source's approved combustion optimization plan pursuant to s. NR 439.096.

(3) PERFORMANCE STANDARDS. (a) *Utility boilers.* No person may cause, allow or permit nitrogen oxides to be emitted from a boiler owned or operated by a utility as defined in s. NR 409.02(84) with a maximum design heat input of 500 million Btu per hour or greater in excess of the most stringent of the following limits, as applicable, during the ozone season:

1. 0.33 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2002.

2. 0.31 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2003.

3. 0.30 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2004.

4. 0.29 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2005.



5. 0.29 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2006.

6. 0.28 pound per million Btu of heat input on a 30-day rolling average basis, on or after December 31, 2007.

(b) *Other boilers.* The requirements of this paragraph apply to boilers which are not subject to the emission limits of par. (a).

1. 'Solid fuel-fired units.' On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a solid fuel-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of the following limits during the ozone season:

a. 0.45 pound per million Btu of heat input on a 30-day rolling average basis for cyclone-fired boilers.

b. 0.20 pound per million Btu of heat input on a 30-day rolling average basis for fluidized bed combustion boilers.

d. 0.30 pound per million Btu of heat input on a 30-day rolling average basis for pulverized coal-fired boilers.

2. 'Gaseous fuel-fired units.' On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a gaseous fuel-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.10 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

3. 'Distillate fuel oil-fired units.' On or after December 31, 2002,

no person may cause, allow or permit nitrogen oxides to be emitted from a distillate fuel oil-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.12 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

4. 'Residual fuel oil-fired units.' On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a residual fuel oil-fired boiler, with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.20 pound per million Btu of heat input on a 30-day rolling average basis during the ozone season.

(c) *Reheat, annealing and galvanizing furnaces.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a reheat furnace, annealing furnace or galvanizing furnace with a maximum design heat input of 100 million Btu per hour or greater and operated during the 2000 ozone season or a later ozone season with a capacity factor of at least 25%, in excess of 0.10 pound per million Btu heat input on a 30-day rolling average basis during the ozone season.

(d) *Combustion turbines.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted from a combustion turbine with a maximum design power output of 50 MWe or greater in an amount greater than the following during the ozone season:

1. 'Gaseous fuel-fired units.' 75 parts per million dry volume (ppmdv), corrected to 15% oxygen, on a 30-day rolling average for units burning gaseous fuel.

2. 'Distillate fuel oil-fired units.' 110 parts per million dry volume

(ppmdv), corrected to 15% oxygen, on a 30-day rolling average basis for units burning distillate fuel oil.

(e) *Reciprocating engines.* On or after December 31, 2002, no person may cause, allow or permit nitrogen oxides to be emitted during the ozone season from reciprocating engines with a maximum design power output of 2000 hp or greater in excess of the following limits:

1. 9.5 grams per brake horsepower for rich-burn units.
2. 10.0 grams per brake horsepower for lean-burn units.
3. 8.5 grams per brake horsepower for distillate fuel oil-fired units.
4. 6.0 grams per brake horsepower for dual-fuel units.

(4) MONITORING REQUIREMENTS. (a) *General requirements.* 1. The owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of sub. (3) shall comply with the monitoring requirements of subch. III.

2. The emissions measurements recorded and reported in accordance with subch. III shall be used to determine compliance by the unit with the NO<sub>x</sub> emissions performance standard under sub. (3).

(b) *Specific requirements.* 1. The owner or operator of an emissions unit subject to the requirements of sub. (3)(a) shall determine the average NO<sub>x</sub> emission rate, in pound per million Btu, using the methods and procedures specified in 40 CFR part 75, Appendices A through I, incorporated by reference in s. NR 484.04.

2. The owner or operator of an emissions unit subject to any of the requirements of sub. (3)(b) to (e) shall determine the average NO<sub>x</sub> emission rate, in pounds per million Btu, using methods and procedures specified in 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04, or other combustion monitoring methods approved by the department.

(5) RECORDKEEPING AND REPORTING REQUIREMENTS. (a) Unless otherwise

provided, the owner or operator of each NO<sub>x</sub> emissions unit subject to the requirements of this section shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created:

1. All emissions monitoring information, in accordance with subch. III; except that, to the extent that subch. III provides for a 3-year period for record retention, the 3-year period shall apply.

2. Copies of all reports, compliance certifications and other submissions and all records made or required under the NO<sub>x</sub> emissions performance program.

(b) The owner or operator of the NO<sub>x</sub> emissions source shall submit the compliance reports and certifications required under the NO<sub>x</sub> emissions performance program in conjunction with those required under the operation permit requirements of s. NR 407.09.

## **SUBCHAPTER II**

### **NO<sub>x</sub> EMISSIONS PERFORMANCE PROGRAM COMPLIANCE PROVISIONS**

**NR 428.06 Compliance determination.** (1) EMISSIONS AVERAGING. (a) Except as provided in par. (c), the NO<sub>x</sub> emissions per million Btu of heat input from all units subject to the requirements of s. NR 428.04(2) or 428.05(3) under the common ownership or control may be averaged together for the purpose of determining compliance with the source's aggregate NO<sub>x</sub> emissions limitation.

(b) Total pounds of emissions shall be determined by continuous emissions monitors that meet the requirements of 40 CFR part 60, Appendix B, incorporated by reference in s. NR 484.04.

(c) Excess NO<sub>x</sub> emission reductions from emissions units subject to s. NR 428.05 may not be used for demonstrating compliance by an emissions unit which is subject to an NO<sub>x</sub> emission limit under ch. NR 405 or 408 or s. NR 428.04.

(2) EMISSIONS TRADING. (a) In accordance with par. (d), 2 NO<sub>x</sub> emissions sources subject to the requirements of s. NR 428.04(2) or 428.05(3) may enter into an agreement for trading emissions unless the sum of the proposed traded emissions and the emissions of the grantor source for the year to which the agreement will apply would exceed the allowable emissions of the grantor source under ss. NR 428.04(2) and 428.05(3) on an ozone season basis, based on the applicable heat rate and the applicable maximum heat input.

(b) To determine whether the NO<sub>x</sub> emissions source that is the grantor in an agreement under par. (a) is in compliance with sub. (1) or the applicable emission limitation under s. NR 428.04 or 428.05 in a given year, the department shall add the traded emissions and the grantor's emissions and divide the sum by the heat input of the grantor on an ozone season basis.

(c) To determine whether the NO<sub>x</sub> emissions source that is the grantee in an agreement under par. (a) is in compliance with sub. (1) or the applicable requirements under s. NR 428.05(3) in a given year, the department shall subtract the traded emissions from the grantee's emissions and divide the difference by the heat input of the grantee on an ozone season basis. The grantee may not use traded emissions to demonstrate compliance with an emission limit under ch. NR 405 or 408 or s. NR 428.04(2).

(d) Any NO<sub>x</sub> emissions source may be a grantor to another NO<sub>x</sub> emissions source provided the grantor has demonstrated to the department that there have been actual NO<sub>x</sub> emission reductions using continuous emission monitoring which meets the requirements of 40 CFR Part 60, Appendix B, incorporated by reference in s. NR 484.04, that the NO<sub>x</sub> emission reductions are not otherwise required by state or federal emission reduction requirements, and that the NO<sub>x</sub> emission reductions represent a reduction from the source's NO<sub>x</sub> emissions during 2000, if the source was operating in 2000.

### **SUBCHAPTER III**

#### **NO<sub>x</sub> EMISSIONS PERFORMANCE PROGRAM MONITORING AND REPORTING PROVISIONS**

**NR 428.07 General requirements.** The owner or operator of an NO<sub>x</sub> emissions unit subject to the requirements of subch. I shall comply with the monitoring and reporting requirements of this subchapter.

(1) REQUIREMENTS FOR MONITORING, INSTALLATION, CERTIFICATION AND DATA ACCOUNTING. (a) By the dates listed in sub. (2), the owner or operator of an NO<sub>x</sub> emissions unit shall submit to the department a monitoring plan that describes in detail the systems to be used on the unit to satisfy the monitoring requirements of this subchapter.

(b) The owner or operator of each NO<sub>x</sub> emissions unit shall do all of the following:

1. Install all monitoring systems required under this subchapter for monitoring NO<sub>x</sub> mass. This includes all systems required to monitor NO<sub>x</sub> emission rate, NO<sub>x</sub> concentration, heat input and flow, in accordance with s. NR 439.09.

2. Install all monitoring systems for monitoring heat input, if required under this chapter, for developing NO<sub>x</sub> emission rate determinations expressed in pounds per million Btu.

3. Successfully complete all certification tests and meet all other provisions of this subchapter and 40 CFR parts 60 and 75 applicable to the monitoring systems under subds. 1. and 2.

4. Record and report data from the monitoring systems under subds. 1. and 2.

(2) COMPLIANCE DATES. The owner or operator shall meet the requirements of sub. (1)(b)1. to 3. on or before the following dates and shall record and report data on and after the applicable listed date as follows:

(a) NO<sub>x</sub> emissions units subject to the requirements of this subchapter that commence operation before the effective date of this section...[revisor inserts date] shall comply with the requirements of this subchapter by December 31, 2002.

(b) NO<sub>x</sub> emissions units subject to the requirements of this subchapter that commence operation on or after the effective date of this section...[revisor inserts date] shall comply with the requirements of this subchapter by the later of the following dates:

1. December 31, 2002.
2. 180 days after the date on which the unit commences operation.

(c) However, if the applicable deadline under par. (b) does not occur during an ozone season, the deadline for compliance with the requirements of this subchapter becomes the May 1 immediately following the date determined in accordance with par. (b).

(d) 1. An NO<sub>x</sub> emissions unit with a new stack or flue for which construction is completed after the applicable deadline under par. (a), (b) or (c) shall comply with the requirements of this subchapter 90 days after the date on which emissions first exit through the new stack or flue.

2. However, if the unit reports on an ozone season basis and the applicable deadline under subd. 1. does not occur during the ozone season, the deadline for compliance with the requirements of this subchapter becomes the May 1 immediately following the date determined in accordance with subd. 1.

(3) REPORTING DATA PRIOR TO INITIAL CERTIFICATION. The owner or operator of an NO<sub>x</sub> emissions unit under sub. (2)(b) or (c) shall determine, record and report NO<sub>x</sub> mass, heat input, if required for purposes of compliance, and any other values required to determine NO<sub>x</sub> mass, for example NO<sub>x</sub> emission rate and heat input or NO<sub>x</sub> concentration and stack flow, using the provisions of 40 CFR 75.70(g), from the date and hour that the unit starts operating until all required certification tests are successfully completed.

(4) PROHIBITIONS. (a) No owner or operator of an NO<sub>x</sub> emissions unit may use any alternative monitoring system, alternative reference method or any other alternative for the required continuous emission monitoring system without having obtained prior written approval in accordance with s. NR 428.10.

(b) No owner or operator of an NO<sub>x</sub> emissions unit may operate the unit so as to emit NO<sub>x</sub> without accounting for all NO<sub>x</sub> emissions in accordance with the applicable provisions of this subchapter.

(c) No owner or operator of an NO<sub>x</sub> emissions unit may disrupt the continuous emission monitoring system, any portion thereof, or any other approved emission monitoring method, and thereby avoid monitoring and recording NO<sub>x</sub> mass emissions emitted, except for periods of recertification or periods when calibration, quality assurance testing or maintenance is performed in accordance with the applicable provisions of this subchapter.

(d) No owner or operator of an NO<sub>x</sub> emissions unit may retire or permanently discontinue use of the continuous emission monitoring system, any component thereof or any other approved emission monitoring system under this subchapter, except under one of the following circumstances:

1. The unit is within a period during which it is covered by a retired unit exemption under s. NR 409.05 that is in effect.

2. The owner or operator is monitoring emissions from the unit with another certified monitoring system approved, in accordance with the applicable provisions of this subchapter, by the department for use at that unit that provides emission data for the same pollutant or data for the same parameter as the retired or discontinued monitoring system.

**NR 428.08 Specific provisions for monitoring NO<sub>x</sub> and heat input for the purpose of calculating NO<sub>x</sub> mass emissions.** (1) UTILITY UNITS. This subsection applies to NO<sub>x</sub> emissions units subject to the requirements of s. NR 428.05(3)(a).

(a) *Coal-fired units.* The owner or operator of a coal-fired boiler shall do one of the following:

1. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub>-diluent continuous emission monitoring system, consisting of an NO<sub>x</sub> pollutant



concentration monitor, an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor and a data acquisition and handling system, to measure NO<sub>x</sub> emission rate, and for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, except as provided in accordance with subpart E of 40 CFR part 75.

2. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub> concentration monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor and a data acquisition and handling system, to measure NO<sub>x</sub> concentration and for a flow monitoring system. In addition, if heat input is required to be reported under this chapter, the owner or operator also shall meet the general operating requirements for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, or, if applicable, use the procedures in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04. These requirements shall be met, except as provided in subpart E of 40 CFR part 75.

(b) *Moisture correction.* If a correction for the stack gas moisture content is needed to properly calculate the NO<sub>x</sub> emission rate in pounds per million Btu, i.e., if the NO<sub>x</sub> pollutant concentration monitor measures on a different moisture basis from the diluent monitor, or NO<sub>x</sub> mass emissions in tons, i.e., if the NO<sub>x</sub> concentration monitoring system or diluent monitor measures on a different moisture basis from the flow rate monitor, the owner or operator of a boiler shall account for the moisture content of the flue gas on a continuous basis in accordance with 40 CFR 75.11(b) except that the term "SO<sub>2</sub>" shall be replaced by the term "NO<sub>x</sub>".

(c) *Gaseous fuel-fired nonpeaking units or oil-fired nonpeaking units.* The owner or operator of a boiler or combustion turbine that, based on information submitted in the monitoring plan, qualifies as a gaseous fuel-fired or oil-fired unit but not as a peaking unit, as defined in 40 CFR 72.2, shall do one of the following:

1. Meet the requirements of par. (a) and, if applicable, par. (b).

2. Meet the general operating requirements in 40 CFR 75.10 for an NO<sub>x</sub>-diluent continuous emission monitoring system, except as provided in accordance with 40 CFR part 75 Subpart E, and use the procedures specified in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04, for determining hourly heat input.

(d) *Gaseous fuel-fired or oil-fired peaking units.* The owner or operator of a boiler or combustion turbine that qualifies as a peaking unit and as either gaseous fuel-fired or oil-fired, as defined in 40 CFR 72.2, based on information submitted in the monitoring plan, shall do one of the following:

1. Meet the requirements of par. (c).

2. Use the procedures in 40 CFR part 75 Appendix D, incorporated by reference in s. NR 484.04, for determining hourly heat input and the procedures specified in 40 CFR part 75 Appendix E, incorporated by reference in s. NR 484.04, for estimating the hourly NO<sub>x</sub> emission rate. In addition, if after certification of an excepted monitoring system under 40 CFR part 75 Appendix E, a unit's operations exceed a capacity factor of 20.0% in any calendar year or exceed a capacity factor of 10.0% averaged over 3 years, the owner or operator shall meet the requirements of par. (c) or, if applicable, par. (e), by no later than December 31 of the following calendar year.

(e) *Other units.* The owner or operator of a boiler or combustion turbine that combusts wood, refuse or other materials shall comply with the monitoring provisions specified in par. (a) and, where applicable, par. (b).

(2) NON-UTILITY UNITS. This subsection applies to NO<sub>x</sub> emissions units subject to the requirements of s. NR 428.04(2) or 428.05(3)(b) to (e).

(a) *Coal-fired units.* The owner or operator of a coal-fired boiler shall do one of the following:

1. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub>-diluent continuous emission monitoring system, consisting of an NO<sub>x</sub> pollutant

concentration monitor, an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor, and a data acquisition and handling system, to measure NO<sub>x</sub> emission rate, and for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, except as provided in accordance with 40 CFR 60.13(i).

2. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub> concentration monitoring system, consisting of an NO<sub>x</sub> pollutant concentration monitor and a data acquisition and handling system, to measure NO<sub>x</sub> concentration and for a flow monitoring system. In addition, if heat input is required to be reported under this chapter, the owner or operator also shall meet the general operating requirements for a flow monitoring system and an O<sub>2</sub>- or CO<sub>2</sub>-diluent gas monitor to measure heat input, or, if applicable, use the procedures in Appendix E to 40 CFR part 75, incorporated by reference in s. NR 484.04. These requirements shall be met, except as provided in 40 CFR 60.13(i).

(b) *Moisture correction.* If a correction for the stack gas moisture content is needed to properly calculate the NO<sub>x</sub> emission rate in pounds per million Btu, i.e., if the NO<sub>x</sub> pollutant concentration monitor measures on a different moisture basis from the diluent monitor, or NO<sub>x</sub> mass emissions in tons, i.e., if the NO<sub>x</sub> concentration monitoring system or diluent monitor measures on a different moisture basis from the flow rate monitor, the owner or operator of an NO<sub>x</sub> emissions unit subject to the requirements of this subchapter shall account for the moisture content of the flue gas on a continuous basis in accordance with 40 CFR 75.11(b) except that the term "SO<sub>2</sub>" shall be replaced by the term "NO<sub>x</sub>".

(c) *Gaseous fuel-fired nonpeaking units or oil-fired nonpeaking units.* The owner or operator of a boiler or combustion turbine that, based on information submitted in the monitoring plan, qualifies as a gaseous fuel-fired or oil-fired unit but not as a peaking unit, as defined in 40 CFR 72.2, shall do one of the following:

1. Meet the requirements of par. (a) and, if applicable, par. (b).

2. Meet the general operating requirements in 40 CFR 60.13 for an NO<sub>x</sub>-diluent continuous emission monitoring system, except as provided in accordance with 40 CFR 60.13(i), and use the procedures specified in Appendix D to 40 CFR part 75, incorporated by reference in s. NR 484.04, for determining hourly heat input.

(d) *Gaseous fuel-fired or oil-fired peaking units.* The owner or operator of a boiler or combustion turbine that qualifies as a peaking unit and as either gaseous fuel-fired or oil-fired, as defined in 40 CFR 72.2, based on information submitted in the monitoring plan, shall do one of the following:

1. Meet the requirements of par. (c).

2. Use the procedures in 40 CFR part 75 Appendix D, incorporated by reference in s. NR 484.04, for determining hourly heat input and the procedures specified in 40 CFR part 75 Appendix E, incorporated by reference in s. NR 484.04, for estimating hourly NO<sub>x</sub> emission rate. In addition, if after certification of an excepted monitoring system under 40 CFR part 75 Appendix E, a unit's operations exceed a capacity factor of 20.0% in any calendar year or exceed a capacity factor of 10.0% averaged over 3 years, the owner or operator shall meet the requirements of par. (c) or, if applicable, par. (e), by no later than December 31 of the following calendar year.

(e) *Other units.* The owner or operator of a boiler or combustion turbine that combusts wood, refuse or other materials shall comply with the monitoring provisions specified in par. (a) and, where applicable, par. (b).

**NR 428.09 Quarterly reports.** The owner or operator of a unit subject to the NO<sub>x</sub> requirements of this subchapter shall submit quarterly reports, as required under this section.

(1) **UNITS SUBJECT TO AN ACID RAIN EMISSION LIMITATION.** If a unit is subject to an acid rain emission limitation or if the owner or operator of the

NO<sub>x</sub> emissions unit chooses to meet the annual reporting requirements of this subchapter, the owner or operator shall submit a quarterly report for each calendar quarter beginning with the following quarters:

(a) For units commencing operation prior to December 31, 2002, the calendar quarter from April 1, 2003 to June 30, 2003. Data shall be recorded and reported from the first hour on May 1, 2003.

(b) For a unit that commences operation on or after December 31, 2002, the calendar quarter in which the unit commences operation. Data shall be reported from the date and hour corresponding to when the unit commenced operation.

(2) UNITS NOT SUBJECT TO AN ACID RAIN EMISSION LIMITATION. If an NO<sub>x</sub> emissions unit is not subject to an acid rain emission limitation, the owner or operator of the NO<sub>x</sub> emissions source shall comply with either of the following requirements:

(a) Meet all of the requirements of 40 CFR part 75 related to monitoring and reporting NO<sub>x</sub> mass emissions during the entire year and meet the reporting deadlines specified in sub. (1).

(b) Submit a quarterly report for each calendar quarter, beginning with the following quarters:

1. For units commencing operation prior to December 31, 2002, the calendar quarter from April 1, 2003 to June 30, 2003. Data shall be reported from the first hour of April 1, 2003.

2. For units that commence operation on or after December 31, 2002, the calendar quarter in which the unit commences operation. Data shall be reported from the date and hour corresponding to when the unit commenced operation.

(3) DEADLINES FOR SUBMITTALS. The owner or operator of an NO<sub>x</sub> emissions source shall submit each quarterly report to the department within 30 days following the end of the calendar quarter covered by the report according to the following schedule:

(a) For units subject to an acid rain emissions limitation, quarterly reports shall be submitted within 30 days following the end of the calendar quarter covered by the report and include all of the data and information required in subpart G of 40 CFR part 75.

(b) For units not subject to an acid rain emissions limitation, reports shall be submitted with the compliance reports required under the facility's operation permit.

(4) COMPLIANCE CERTIFICATION. The owner or operator of an NO<sub>x</sub> emissions source shall submit to the department a compliance certification in support of each quarterly report based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall state the following:

(a) The monitoring data submitted were recorded in accordance with the applicable requirements of this subchapter, including the quality assurance procedures and specifications.

(b) For a unit with add-on NO<sub>x</sub> emission controls and for all hours where data are substituted in accordance with 40 CFR 75.34(a)(1), the add-on emission controls were operating within the range of parameters listed in the monitoring plan and the substitute values do not systematically underestimate NO<sub>x</sub> emissions.

(c) For a unit that is reporting on an ozone season basis under this subsection, the NO<sub>x</sub> emission rate and NO<sub>x</sub> concentration values substituted for missing data under subpart D of 40 CFR part 75 are calculated using only values from an ozone season and do not systematically underestimate NO<sub>x</sub> emissions.

**NR 428.10 Petitions.** The owner or operator of an NO<sub>x</sub> emissions source may submit a petition to the department requesting approval to apply an alternative to any requirement of this subchapter. Application of an

alternative to any requirement of this subchapter is in accordance with this subchapter only to the extent that the petition under this section is approved by the department.

**NR 428.11 Additional requirements to provide heat input data.** The owner or operator of a unit that either monitors and reports or elects to monitor and report NO<sub>x</sub> mass emissions using an NO<sub>x</sub> concentration system and a flow system shall also monitor and report heat input at the unit level.

SECTION 9. NR 439.096 is created to read:

**NR 439.096 Methods and procedures for combustion optimization.** The owner or operator of a unit subject to the combustion optimization requirements of s. NR 428.05(2) shall comply with all applicable methods and procedures for combustion optimization listed in this section.

(1) GENERAL. All combustion optimizations conducted shall be performed according to methods approved in writing by the department. The owner or operator responsible for combustion optimizations shall follow the procedures in this section.

(2) COMBUSTION OPTIMIZATION NOTIFICATION AND PLAN SUBMITTAL. The department shall be notified in writing at least 45 days in advance of a combustion optimization to provide the department an opportunity to evaluate the plan and to have a representative present to witness the combustion optimization procedures. The notice shall provide a combustion optimization plan which includes, but need not be limited to, the following information:

(a) The results of an engineering study of the process to be optimized. The engineering report shall identify and evaluate the options available for modifications to the process that would optimize combustion while minimizing NO<sub>x</sub> emissions.

(b) A description of the process or operation variables which affect the

air contaminant source's emissions.

(c) A description of the process to be optimized.

(d) A description of the sampling equipment and the combustion optimization methods and procedures to be used.

(e) The date and starting time of the combustion optimization.

(f) A description of the number and location of any sampling ports and sampling points and an identification of the combustion gases to be sampled.

(g) A statement indicating the production rate and the operating conditions at which the combustion optimization will be conducted.

(3) COMBUSTION OPTIMIZATION PLAN EVALUATION. In evaluating the combustion optimization plan, the department shall respond to the source owner or operator within 15 business days of receipt of the plan and may require one or more of the following activities:

(a) A pre-combustion optimization conference which includes the owner or operator of the source, the person conducting the combustion optimization and the department to discuss any deficiencies in the plan or settle any combustion optimization procedure questions the department, the person conducting the combustion optimization or the source owner or operator might have.

(b) Any change to the sampling method that is deemed necessary by the department to conduct a proper combustion optimization.

(c) A rescheduling of the combustion optimization to accommodate witnessing or source production schedules.

(4) NOTIFICATION OF COMBUSTION OPTIMIZATION PLAN REVISION. The source owner or operator shall notify the department of any modifications to a combustion optimization plan at least 5 business days prior to the combustion optimization. In the event the owner or operator is unable to conduct the combustion optimization on the date specified in the plan, due to unforeseeable circumstances beyond the owner or operator's control, the owner or operator shall notify the department at least 5 business days prior to the



scheduled combustion optimization date and specify the date when the combustion optimization is to be rescheduled.

(5) PROPER FACILITIES FOR COMBUSTION OPTIMIZATION. The department may require the owner or operator of a source to provide proper facilities for conducting combustion optimization tests which may include the testing facilities listed in s. NR 439.07(5)(a) to (e).

(6) WITNESSING REQUIREMENTS. The department may require that a department representative be present at any combustion optimization. The department may require the following activities:

(a) The department may require the person conducting the combustion optimization to provide the department a copy of all test data and equipment calibration data prepared or collected for the combustion optimization.

(b) The department may require the source owner or operator and person conducting the combustion optimization to correct any deficiency in the performance of the combustion optimization provided that the department notifies the source owner or operator and person conducting the combustion optimization of the deficiency as soon as it is discovered. The failure of a source owner or operator and person conducting the combustion optimization to correct any deficiency may result in the department refusing to accept the results of the combustion optimization.

(7) COMBUSTION OPTIMIZATION EQUIPMENT CALIBRATION REQUIREMENTS. The components of any emission sampling train or associated sampling equipment listed in this subsection shall be calibrated not more than 60 days before the test. This includes the following:

- (a) Any equipment used to measure gas velocity.
- (b) Any equipment used to meter sample gas volume.
- (c) Any equipment used to regulate sample gas flow.
- (d) Any equipment used to measure temperature.
- (e) Any gas sampling nozzle used during the emission test.
- (f) Any equipment used to determine gas molecular weight.

(g) Any other sampling equipment that requires periodic calibration.

(8) PROCEDURES FOR CONDUCTING COMBUSTION OPTIMIZATIONS. Any emissions testing conducted in conjunction with combustion optimization shall be conducted in accordance with s. NR 439.07. The combustion optimization shall include the following procedures:

(a) An engineering study to identify the optimized combustion profile or equipment modifications needed to optimize combustion. The study shall address, but is not limited to, the modification of the following systems: fuel delivery, burner, primary and secondary combustion monitoring, combustion air delivery and burner management.

(b) The combustion optimization shall be based on burner tune-up procedures which result in maximum combustion efficiency and a low NO<sub>x</sub> operating curve. This curve shall determine the operating range of combustion variables such as CO and O<sub>2</sub> at set points within the following ranges: 20-30% load, 45-55% load, 70-80% load and 95-100% load, for those set points that represent at least 10% of boiler operating hours in a typical year.

(c) A continuous combustion analyzer shall be used to monitor the operation of the combustion unit in accordance with the combustion efficiency and low NO<sub>x</sub> operating curve required under this section. The analyzer shall monitor the combustion parameters CO and O<sub>2</sub> or monitor NO<sub>x</sub> directly. The fuel flow rate shall be monitored.

(9) COMBUSTION OPTIMIZATION REPORTING REQUIREMENTS. The owner or operator of a source that conducts a combustion optimization shall submit a copy of the report of the combustion optimization to the department within 60 days after its completion. If requested, the department may grant an extension of up to 30 days for combustion optimization report submittal. The failure to include the following information in a combustion optimization report may result in rejection of the combustion optimization. The combustion optimization report shall include, but need not be limited to, the following information:

(a) A detailed description of the process optimized and the procedures employed.

(b) A log of the operating conditions of the process optimized and of any associated air pollution control device.

(c) A summary of results, expressed in terms of the concentrations of  $\text{NO}_x$ ,  $\text{O}_2$  and  $\text{CO}$ , prior to and following the combustion optimization.

(d) Sample calculations employing all the formulas used to calculate the results.

(e) The field and laboratory data for the optimization.

(f) The engineering study and combustion efficiency and low  $\text{NO}_x$  operating curve required under sub. (8)(a) and (b).

(g) The report of any visible emission evaluations performed during the combustion optimization.

(h) A copy of any steam, opacity or airflow charts made during the optimization.

(i) The report of any fuel analysis performed on the fuel burned during the optimization.

(j) Documentation of any process upset occurring during the optimization.

(k) If the combustion optimization being conducted is one required under sub. (10), the changes made to the process or control device since the last test.

(10) ADDITIONAL COMBUSTION OPTIMIZATIONS. (a) The department may require an  $\text{NO}_x$  emissions source to conduct an additional combustion optimization if the department determines that a source has not satisfied the requirements of sub. (8) or (9).

(b) Combustion units that are modified sources with respect to  $\text{NO}_x$  due to a change in the method of operation shall perform a new combustion optimization including the determination of a new combustion efficiency and low  $\text{NO}_x$  operating curve.

SECTION 10. NR 484.04(21) and (27) are amended to read:

NR 484.04 (21) 40 CFR part	Performance Specifications	NR 428
60 Appendix B		NR 439
		NR 460 to 469
(27) 40 CFR part 75		NR 428
Appendices A to I		NR 439

SECTION 11. NR 485.04 (9)(title) and (a) are renumbered 485.04 (9) and amended to read:

NR 485.04(9) (title) EFFECTIVE DATE FOR OXIDES OF NITROGEN REQUIREMENTS~~+~~  
~~EPA WAIVER. (a) NO<sub>x</sub> emissions.~~ An inspection under s. 110.20 (6)(a), Stats.,  
shall include an inspection for emissions of oxides of nitrogen. However, the  
emission limitations for oxides of nitrogen in subs. (2)(c) and (7)(a)3. shall  
apply for compliance purposes only to inspections conducted after ~~November 30,~~  
~~1997~~ May 1, 2001.

SECTION 12. NR 485.04(9)(b) is repealed.

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The foregoing rule was approved and adopted by the State of Wisconsin  
Natural Resources Board on \_\_\_\_\_.

The rule shall take effect the first day of the month following  
publication in the Wisconsin administrative register as provided in s.  
227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin \_\_\_\_\_.

STATE OF WISCONSIN  
DEPARTMENT OF NATURAL RESOURCES

By \_\_\_\_\_  
George E. Meyer, Secretary

(SEAL)